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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/311,333	05/13/1999	ROGER SCOTT ZIMMERMAN	5494:57	1111

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PHILIPS CORPORATION  
INTELLECTUAL PROPERTY DEPARTMENT  
580 WHITE PLAINS ROAD  
TARRYTOWN, NY 10591

EXAMINER
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KNEPPER, DAVID D

ART UNIT	PAPER NUMBER
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2654

23

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/311,333

Applicant(s)

ZIMMERMAN ET AL.

Examiner

David D. Knepper

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. Applicant's correspondence filed on 17 May 2004 (paper #22) has been received and considered. Claims 1-17 are pending.
2. The amendment filed 15 October 2002 (paper #14) and 8 March 2002 (paper #6) is objected to under 35 U.S.C. 132 because they both introduce new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows.

Regarding paper #6, the second description of figure 2 added to page 7, line 13 contradicts the first description and must be removed.

Regarding paper #14, the claimed "selecting at least one adaptation algorithm from a plurality of adaptation algorithms ... to improve at least one application-specific feature" also contradicts the original description and must be removed.

Applicant is required to cancel the new matter in the reply to this Office Action.

3. The amendments to the specification were entered.

#### **Drawings**

4. The changes to figure 1 received 23 July 2002 (paper #8) would be approved if the label numbers currently missing from the specification can be added to the specification without adding new matter (i.e. – if the descriptions of these new elements in the drawing may be shown to have previously existed in the specification).

The drawing changes inserting tables in the specification and re-numbering figure 5 as

figure 3 are approved.

### Claims

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while enabling for applying an adaptation algorithm, does not reasonably provide enablement for “selecting at least one adaptation algorithm from a plurality of adaptation algorithms ... to improve at least one application-specific feature”. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification teaches that the invention is able to utilize an adaptation algorithm.

However, the specification fails to support selecting one type of adaptation algorithm from multiple adaptation algorithms. The specification has no implementation details to instruct one of ordinary skill in the art when or how such a selection process would be performed. The specification fails to provide details describing how to perform such a selection process based on a specific application.

The language of claim 16 refers to memory “selecting code” and “updating code” and indicates that the code itself is applied and updated. The specification fails to teach how to make and use any type of code that can adapt itself. The claim indicates that “applying code to apply a

given adaptation algorithm” which is interpreted as meaning that the code is actually the algorithm is some unique code. The specification does not teach how to make any such unique code.

In other words, the specification fails to support code which can not only update particular recognition data but can modify itself. This, if enabled, would allow an algorithm to modify itself and would actually change the algorithm to employ a different (modified) algorithm every time it is operated.

To further prosecution, the claim is interpreted as a computer program that implements the method using a conventional computer programming language and “updating code” is interpreted as just updating data in the speech recognizer.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-17 are rejected under 35 U.S.C. § 103 as being unpatentable over Sabourin (6,208,964) in view of Rowden (“Speech Processing”).

As per claim 1, “improving the recognition accuracy of a speech recognizer” is taught or suggested by Sabourin’s adaptive speech recognition (abstract):

“deploying the speech recognizer” (his speech recognition of figure 2);

“collecting live input data” (his speech source 100);

“without supervision, applying a given adaptation algorithm to the received live input data” (his adaptation module 112 which improvement is done to automate partially or fully the training of a speech recognition dictionary in a speech recognition system, col. 1, lines 10-11); and

“redeploying the adapted speech recognizer” (suggested in that he teaches that adapting the recognition system is for the purpose of improving it for later use – read abstract).

It is noted that Sabourin does not explicitly teach the “redeploying”. However, he teaches that the improvement made through updating the system can be used later. Thus, it would have been obvious for a person having ordinary skill in the speech recognition, at the time the invention was made, that the updating process of Sabourin could be used to improve any speech recognition for later use because this is Sabourin’s purpose for improving recognition.

It is also noted the Sabourin does not explicitly teach “selecting at least one adaptation algorithm from a plurality of adaptation algorithms ... to improve at least one application-specific feature”. However, in describing prior art systems and the application of modern techniques for adapting speech recognition, Rowden teaches that it is well known to select a suitable model and appropriate algorithms are used to compute the output of the model for a specified input (for recognition or synthesis) on page 235. This is also considered in view of his teaching on page 229 that it was well known to raise the performance of recognition by adapting

the grammar depending upon the particular application. On page 229 he also teaches that by the late sixties, simple techniques could be used to train vocabulary applications with as few as ten words. Rowden teaches that it would be ideal to train recognition for all of the possible sentences in a language, but this is obviously completely impractical (page 236). Rowden points out that other relationships between language models may be used to advantage such as the fact that sentences may be broken into words, words into syllables, phonemes, etc. Given the variety of algorithms that are well known, Rowden concludes that it is obvious to choose the best estimates for the least data—maximum generalization (page 236). Therefore, it would have been obvious to one of ordinary skill in the art to select simple adaptation techniques for applications requiring small vocabularies and to select more advanced adaptation techniques for applications requiring large vocabularies because of his figure 7.3 on page 228, figure 7.4 on page 230, figure 7.5 on page 232, figure 7.6 on page 233 and the statistical techniques on pages 235-236 which show that it was known to use different types training or updating for different applications of speech recognition. Rowden's application of this selection process is further illustrated using the speech pattern modeling on pages 236-237 which teach the use of bi-gram syntax in hidden Markov models to maximize the training benefits.

Claim 2: The prior art uses a computer 500, fig. 5.

Claim 3: Data may be contained in storage 500 which is not directly recognizable by a human, fig. 5.

Claim 4: Speech is not instantaneous and, therefore, must inherently be collected over time.

Claim 5, 9: The use of acoustically significant phonemes is taught in column 5.

Claim 6: The use of Hidden Markov Models is taught column 4.

Claim 7: The use of a language model is taught by his use of a lexicon 302.

Claim 8: Official Notice is taken that the use of bigram statistics is well known for use in context dependent HMM such as taught by Sabourin (see Rowden, page 237).

Claim 10: Transcription is taught by Sabourin (see title).

Claims 11-14 are rejected under similar arguments as applied above.

Claim 16 is presumed to be an attempt to claim a computer program that performs the previously claimed method (claim 1, for example).

Claim 17: Sabourin's unsupervised training inherently improves any pronunciation related measure to include dialect and speaking style. Channel characteristics would be inherently improved using any training technique consistently applied across the desired channel.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



REMARKS

10. The abandonment of this application in March 2003 for failure to respond to the Final Rejection of May 2002 is regrettable since it appears that the applicant filed a response in October 2002. The Examiner has no explanation as to why this response was not entered or matched with the application until after the abandonment (over 10 months after Final Rejection).

The Examiner has never confused the applicant's method invention as an apparatus and the comments to the contrary on page 12 of paper #22 are not appreciated.

The Computer-Related Guidelines are familiar to the Examiner. The Examiner has never required or implied that the applicant must provide any computer code and the applicant's comments to the contrary on page 12 of paper #22 are not appreciated.

The Examiner would consider a drawing of a diskette or a CD to be totally useless based on the claimed invention and the attached specification which both fail to indicate the invention of a new diskette or CD. Applicant's comments to the contrary on page 12 of paper #22 are not appreciated.

The applicant's reference on page 13 of paper #22 to page 20 of the specification for support of claim 16 indicates that the Examiner has correctly interpreted this claim as software that performs the method of claim 1 (page 20, lines 16 to page 21, line 9).

The argument on page 13 of paper #22 against the rejection under 35 USC 112, first paragraph is not convincing. Claim 1, for example, may be read upon prior art that only uses one adaptation algorithm ("at least one"). The prior art of Rowden has a clear explanation of the trade-offs that one of ordinary skill in the art should apply to make a selection between known

adaptation algorithms (Rowden, page 236) but the applicant's disclosure is lacking any explanation for such a selection. It would be obvious to apply the prior art explanation to the applicant's disclosure since they are discussing the same art of improving speech recognition using adaptation or training of the recognizer. This enables a rejection under 35 USC 103 but fails to overcome the applicant's obligation to fulfill the requirements of 35 USC 112, first paragraph.

The applicant's argument against the use of Sabourin under 35 USC 103 is not convincing because Sabourin clearly selects the use of transcription adaptation for speech recognition. It is noted that Sabourin also teaches the use of the well known Hidden Markov Models (HMMs) for representing sub-word speech recognition models. This teaches that updating the speech models would also be obvious as part of the transcription adaptation that is being performed to improve speech recognition.

**11. Any response to this action should be mailed to:**

Box AF  
Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

TC2600 Fax Center  
(703) 872-9315

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

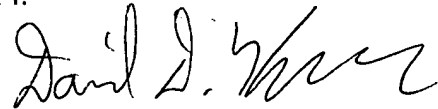
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Knepper whose telephone number is (703) 305-9644.

The examiner can normally be reached on Monday-Thursday from 07:30 a.m.-6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (703) 305-9645.

Any inquiry of a general nature or relating to the status of this application should be directed to customer service at (703) 306-0377.

The facsimile number for TC 2600 is (703) 872-9314.

A handwritten signature in black ink, appearing to read "David D. Knepper", with a stylized flourish at the end.

David D. Knepper  
Primary Examiner  
Art Unit 2654